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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,785	10/17/2003	Neil D. Lubart	29808-12	9559

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EXAMINER	
WOOD, KEVIN S	

ART UNIT	PAPER NUMBER
2874	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,785	LUBART ET AL.	
	Examiner	Art Unit	
	Kevin S. Wood	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 36-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,36,39,40,42 and 43* is/are rejected.

7)☒ Claim(s) *9-17, 37, 38 and 41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responsive to the Amendment filed on 22 March 2007. Claims 18-35 have been previously cancelled. New claims 42 and 43 have been added. Claims 1, 2, 36, and 39 have been amended. Claims 1-17 and 36-43 are pending in the application.

Response to Arguments

2. Applicant's arguments filed on 22 March 2007 have been fully considered but they are not persuasive. The examiner has thoroughly reviewed the amendments and the applicant's arguments, however the examiner firmly believes that the cited prior art reasonably and properly meets all the claimed limitations of claims 1-8, 36, and 39-40.

With respect to claim 1, the applicant's primary argument is that the Nakama et al. reference (U.S. Patent No. 6,766,076) does not disclose the newly added limitation where the light travels between the plurality of wave guide structures through the first substrate. The examiner respectfully disagrees with this argument. Based on the amendment to claim 1, the cladding portion of the optical fibers (4) now meets the claimed limitations for the wave guide structures instead of the core. It is inherent that the light travels by internal reflection inside the cores of the optical fibers, while staying between the claddings. Based on this it is fair to state that the light travels within or

between the cladding(s) and through the first transparent substrate (3) within the Nakama et al. reference.

With respect to claims 36 and 39, the applicant's primary argument is that the Nakama et al. reference does not disclose the newly added limitation where each waveguide structure is substantially bounded by the fist and second surface of the first substrate. The examiner respectfully disagrees with this argument. Based on the amendments to claims 36 and 39, the adhesive (5) which surrounds the and fixes the ends of the optical fibers (4) no meets all the claimed limitations with respect to the wave guide structures. The adhesive (5) forms a plurality of wave guide structures, defined by voids in the first transparent substrate (3), where each wave guide structure extends between and is bounded by the first surface and the second surface of the first transparent substrate (3).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 7-8, 36, 39-40, 42 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,766,076 to Nakama et al.

Referring to claims 1-4, 7-8, and 42, the Nakama et al. reference discloses all the limitations of the claimed invention. The Nakama et al. reference disclose a collimating device including: a first transparent substrate (3) having a first surface and a second surface, the first transparent substrate having an index of refraction; a plurality of wave guide structures formed by the cladding(s) of the optical fibers (4) provided in the first transparent substrate, the plurality of wave guide structures having an index of refraction different than the index of refraction of the first transparent substrate, each wave guide structure having a base associated with the first surface of the first transparent substrate, a second transparent substrate (1) having a first surface and a second surface wherein the first surface of the second transparent substrate is facing the first surface of the first transparent substrate (3), the second transparent substrate (1) having an index of refraction; and a plurality of exit control structures (11) provided in the second transparent substrate, the plurality of exit control structures having an index of refraction different than the index of refraction of the second transparent substrate, each exit control structure having a base associated with the first surface of the second transparent substrate, wherein the first surface of the first transparent substrate and the first surface of the second transparent substrate face each other such that each wave guide structure is generally aligned with each exit control structure thereby forming a collimating structure, wherein light (100) emanating from a first direction facing the second surface of the first transparent substrate is collimated as it exits adjacent collimating structures. See Fig. 2 of the reference, along with their respective portions of the specification. The guide substrate (3) is disclosed as being made from

aluminosilicate glass, which has a refractive index and is known to be transparent to light. The reference discloses that the substrates (1,2,3) are all index matched.

Referring to claims 36, 39-40, and 43, the Nakama et al. reference discloses all the limitations of the claimed invention. The Nakama et al. reference disclose a collimating device including: a first transparent substrate (3) having a first surface and a second surface, the first transparent substrate having an index of refraction; a plurality of wave guide structures formed by adhesive (5) that secures the optical fibers (4) within first transparent substrate, the plurality of wave guide structures having an index of refraction different than the index of refraction of the first transparent substrate, each wave guide structure having a base associated with the first surface of the first transparent substrate, a second transparent substrate (1) having a first surface and a second surface wherein the first surface of the second transparent substrate is facing the first surface of the first transparent substrate (3), the second transparent substrate (1) having an index of refraction; and a plurality of exit control structures (11) provided in the second transparent substrate, the plurality of exit control structures having an index of refraction different than the index of refraction of the second transparent substrate, each exit control structure having a base associated with the first surface of the second transparent substrate, wherein the first surface of the first transparent substrate and the first surface of the second transparent substrate face each other such that each wave guide structure is generally aligned with each exit control structure thereby forming a collimating structure, wherein light (100) emanating from a first direction facing the

second surface of the first transparent substrate is collimated as it exits adjacent collimating structures. See Fig. 2 of the reference, along with their respective portions of the specification. The guide substrate (3) is disclosed as being made from aluminosilicate glass, which has a refractive index and is known to be transparent to light. The reference discloses that the substrates (1,2,3) are all index matched.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5 and 6, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,766,076 to Nakama et al.

Referring to claim 5, the Nakama et al. reference does not appear to specifically disclose that the first and second transparent substrates are constructed of a polymer. However, the application does not appear to disclose the criticality or novelty associated with forming a substrate from a polymer. Polymer substrates are well known within the optical waveguiding art and are known for being inexpensive and easy to manufacture. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a polymer material to form the substrates, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin, 125 USPQ 416.*

Referring to claim 6, the Nakama et al. reference does not appear to specifically disclose that waveguide structure (optical fibers) have generally the same index of refraction as the exit control structures (lenses). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a waveguide structure having generally the same refractive index as the exit control structures, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).* It is clear that the index of refraction of the core and cladding of the optical fiber are result effective variables in the optical waveguiding art.

Allowable Subject Matter

8. Claims 9-17, 37, 38 and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin S. Wood whose telephone number is (571) 272-2364. The examiner can normally be reached on Monday-Thursday (7am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KSW

Kevin S Wood

KEVIN WOOD
PRIMARY PATENT EXAMINER